



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/581,123

06/13/2007

Andrew F. Barrett

2559-0433

1759

7590
Harbin King & Klima
500 Ninth Street SE
Washington, DC 20003

04/03/2009

EXAMINER

OLSON, LARS A

ART UNIT

PAPER NUMBER

3617

MAIL DATE

DELIVERY MODE

04/03/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,123	Applicant(s) BARRETT ET AL.	
	Examiner Lars A. Olson	Art Unit 3617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11, 13-16, 18-20, 23, 24 and 26-59 is/are rejected.
- 7) ☒ Claim(s) 9, 10, 12, 17, 21, 22 and 25 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>05312006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. A preliminary amendment was received from the applicant on May 31, 2006.

Claim Objections

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).
3. Misnumbered claim 1815 been renumbered as claim 18.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 4, 11, 34-56, 58 and 59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claim 4 recites the limitation "the algorithm claims" in line 2. There is insufficient antecedent basis for this limitation in the claim.
7. The term "relatively long term magnetic disturbance" in Claim 11 is a relative term which renders the claim indefinite. The term "relatively long term" is not defined by

Art Unit: 3617

the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

8. On lines 4-5 of Claim 34, a method step is described as “setting a nozzle control command to a nozzle control apparatus command”. It is unclear to the examiner how a “nozzle control command” and a “nozzle control apparatus command” differ from each other, since they appear to be identical commands.

9. Claim 44 recites the limitation "the operating characteristics" in line 6. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 48 recites the limitation "the operating characteristics" in lines 7-8. There is insufficient antecedent basis for this limitation in the claim.

11. On lines 4-5 of Claim 52, a method step of reducing the effect of electromagnetic field interference is accomplished by "changing a use of the heading signal" by "compensating for the field interference and acquiring the heading signal". It is unclear to the examiner from what use said heading signal is to be changed, or what use into which said heading signal is being changed, since no use is defined at all for said heading signal in the claim.

12. Claim 52 recites the limitation "the heading data" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 14-16, 18, 19, 23, 24 and 26-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Braddon (US 3,715,571).

Braddon discloses the same method for calculating a heading of a watercraft as claimed, as shown in Figure 1, that is comprised of the steps of acquiring a heading of a watercraft at a base time from a heading sensor or compass, defined as Part #13, acquiring at a later time a heading turn rate from a yaw rate transmitter, defined as Part #21, determining whether the acquired heading is accurate using a heading integrator, defined as Part #29, calculating a heading based on said heading turn rate and said acquired heading using a summing amplifier, defined as Part #25, and outputting said calculated heading for control of said watercraft, as described in lines 57-60 of column 2.

15. Claims 29-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Wesner (US 3,604,907).

Wesner discloses the same method for correcting a heading of a watercraft, as shown in Figures 1a-c, that is comprised of the steps of measuring an amount of error induced by a disturbance on data from a heading sensor, defined as Part #10, acquiring heading data from said heading sensor, determine whether a disturbance is occurring,

Art Unit: 3617

correcting said heading data by means of a filtering function in the occurrence of a disturbance and adding a correction value to said heading using a threshold circuit, defined as Part #21, and outputting corrected heading data for control of said watercraft, as described in lines 56-64 of column 6.

16. Claims 44-51, 58 and 59 are rejected under 35 U.S.C. 102(b) as being anticipated by McKenney et al. (US 6,230,642).

McKenney et al. discloses the same method for controlling a watercraft having a rear propulsion device and a thruster as claimed, as shown in Figures 1A-6, that is comprised of the steps of prepositioning an angle of a rear propulsion device, defined as Part #12, having a rear nozzle, defined as Part #18, after engagement of a thruster, defined as Part #16, in order to provide a sideways force that minimizes vessel yaw prior to the occurrence of a heading error, as described in lines 45-48 of column 2.

McKenney et al. also discloses a method for controlling a watercraft that is comprised of the steps of initiating a sideways movement of said watercraft by engaging a rear propulsion unit, as shown in Figures 3A and 3C, and engaging a thruster, defined as Part #16, after engaging said rear propulsion unit to assist in sideways movement of said watercraft.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 3617

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 1-5, 13 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ford et al. (US 5,509,369) in view of McKenney et al.

Ford et al. discloses a method for controlling the heading of a watercraft, as shown in Figures 1-8, that is comprised of the steps of acquiring a desired heading using an automatic steering system, defined as Part #10, acquiring an actual heading using a flux gate compass, defined as Part #96, calculating a heading error by comparing said desired heading with said actual heading using a microprocessor, defined as Part #97, as described in lines 55-59 of column 5, determining a rate of change of said heading error using a heading gain multiplier, defined as Part #106, determining algorithm gains used to control a rate of deflection of a steering actuator, defined as Part #16, as described in lines 20-44 of column 6, determining a value for a steering actuator control signal by means of a loop gain multiplier, defined as Part #156, determining an amount of deflection for said steering actuator for altering a heading of said watercraft, deflecting said steering actuator based on said determined amount of deflection, and repeating said steps until said actual heading equals said desired heading, as described in lines 20-47.

Ford et al., as set forth above, discloses all of the features claimed except for the use of a watercraft propulsion system having a nozzle with a rate of deflection, and a bow thruster.

McKenney et al., as previously cited, discloses a method for controlling the heading of a watercraft having a rear propulsion device, defined as Part #12, with a steerable nozzle, defined as Part #18, and a bow thruster, defined as Part #16.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to utilize a watercraft with a propulsion system having a steerable nozzle and a bow thruster, as taught by McKenney et al., in combination with the method for controlling the heading of a watercraft as disclosed by Ford et al. for the purpose of providing a method for controlling the deflection rate of a propulsion nozzle in order to compensate for a heading error from a desired heading.

19. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ford et al. in view of McKenney et al., and further in view of Burns (US 3,825,911).

Ford et al. in combination with the teachings of McKenney et al. shows all of the features claimed except for the use of a three axis heading sensor.

Burns discloses a compass system for a watercraft, as shown in Figures 1-3, that includes a three axis heading sensor in the form of a magnetic compass, defined as Part #10, with a gimball mount, defined as Part #10a, as shown in Figure 1, and described in lines 4-47 of column 3. Said compass is also provided with a means for determining whether a magnetic disturbance is occurring that will potentially affect the accuracy of the determined heading, as described in lines 24-33 of column 4.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to utilize a three axis heading sensor, as taught by Burns, in combination with the method for controlling the heading of a watercraft as disclosed by

Art Unit: 3617

Ford et al. and the teachings of McKenney et al. for the purpose of providing a method for determining a three axis heading of a watercraft instead of only a single axis heading in order to more accurately control the heading of said watercraft.

20. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Braddon in view of Buckley et al. (US 6,273,771).

Braddon, as set forth above, discloses all of the features claimed except for the use of a GPS unit for acquiring the heading of a watercraft.

Buckley et al. discloses a control system for a watercraft, as shown in Figures 1-12, that includes a GPS unit, defined as Part #12, that is utilized for acquiring a heading of said watercraft, as shown in Figure 12.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to utilize a GPS unit as a means for acquiring a heading of a watercraft, as taught by Buckley et al., in combination with the method for controlling the heading of a watercraft as disclosed by Braddon for the purpose of providing a method for controlling a heading of a watercraft more accurately.

21. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wesner in view of Burns.

Wesner, as set forth above, discloses all of the features claimed except for the use of a magnetic heading sensor for acquiring the heading of a watercraft.

Burns, as previously cited, discloses a compass system for a watercraft that includes a three axis heading sensor in the form of a magnetic compass, defined as

Art Unit: 3617

Part #10, with a gimball mount, defined as Part #10a, as shown in Figure 1, and described in lines 4-47 of column 3.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to utilize a magnetic heading sensor, as taught by Burns, in combination with the method for correcting the heading of a watercraft as disclosed by Wesner for the purpose of providing a method for determining a heading of a watercraft with a means that is capable of detecting magnetic disturbances in order to control said heading more accurately.

Allowable Subject Matter

22. Claims 9, 10, 12, 17, 21, 22 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

23. Claims 11, 34-43 and 52-56 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ford et al. (US 5,632,217) discloses an automatic steering system for a watercraft.

Art Unit: 3617

25. Any inquiry concerning this communication from the examiner should be directed to Exr. Lars Olson whose telephone number is (571) 272-6685.

lo

March 20, 2009

/Lars A Olson/

Primary Examiner, Art Unit 3617